

REMARKS

Claims 1, 4, 5, and 7-15 are in this application and are presented for consideration. By this amendment, Applicant has amended claim 14. Applicant has also added new independent claim 15.

The drawings have been objected to because the Office Action states that the lines, numbers and letters are not uniform, clean and well defined in Figures 4A, 4B, 5A and 5B.

Applicant has attached a replacement sheet of drawings of Figures 4A, 4B, 5A and 5B. Figures 4A, 4B, 5A and 5B have been amended to improve the clarity and overall appearance and line quality of the features depicted. Applicant respectfully requests that the Examiner enter Figures 4A, 4B, 5A and 5B as now presented.

Claims 1, 5, 7 and 9-14 have been rejected under 35 U.S.C. 102(b) as being anticipated by Knowlton (U.S. 5,660,836).

The present invention relates to an apparatus for non-destructive hyperthermia therapies. The apparatus comprises a generating means for generating radio-frequency electromagnetic radiation. The generating means is connected to an application means such that the application means applies the radiation to the skin of a living being. The application means comprises an active electrode for contacting the skin portion of the living being. The active electrode is provided with a sensor means for detecting the skin temperature of the skin of the living being. The sensor means includes at least one sensor incorporated in the active electrode. The active electrode is a plate shaped electrode. This advantageously allows the active electrode to be in flat contact with the skin to provide a better contact surface so that highly

accurate and precise readings of the skin temperature are detected. The active electrode has a surface contact means for directly engaging the skin portion of the subject. This advantageously allows the electromagnetic radiation to be applied directly to the area where the subject is experiencing discomfort. This advantageously allows the apparatus to reduce the pain associated with pathologies, such as rheumatoid inflammations, tendonitis and acute inflammatory forms. The prior art as a whole fails to provide such features or advantages.

Knowlton discloses an apparatus for controlled contraction of collagen tissue. The apparatus applies radiant energy through a skin layer, such as the epidermis, and to the underlying collagen tissue without substantially modifying melanocytes and other epithelial cells found in the lower layer of the epidermis layer. A porous member 18 is adapted to receive an electrolytic solution. Porous membrane 18 becomes inflated to form a contacting exterior surface 22 which is in close thermal contact with the epidermis. Porous membrane 18 includes a cooling lumen 24 for receiving a cooling fluid that imparts a cooling effect on the epidermis layer. One or more thermal electrodes 26 are positioned at various places in porous membrane 18. The thermal electrodes 26 are positioned on a side that is substantially opposite to the contacting exterior surface 22.

Knowlton fails to teach and fails to suggest the combination of an active electrode that has a skin contacting surface for being in direct contact with a skin portion of a subject. At most, Knowlton discloses a porous membrane 18 wherein thermal electrodes 26 are located within the porous membrane 18. However, the thermal electrodes 26 of Knowlton are not applied directly to the skin of a subject as featured in the claimed combination. Knowlton takes

a completely different approach than that of the present invention. Knowlton discloses that a contacting exterior surface 22 of a porous membrane 18 is applied to the skin. Compared with Knowlton, the active electrode has a skin contacting surface that directly engages the skin of the subject. This advantageously allows the radiation generated by the generating means to be applied directly to the area that provides discomfort to the subject. This advantageously allows the subject to receive relief from the ailment more quickly and effectively. In contrast to the present invention, the thermal electrode 26 of Knowlton does not have any surface that directly contacts the skin of a patient. Knowlton clearly discloses that the thermal electrodes 26 are positioned on a side that is substantially opposite the contacting exterior 22 or the thermal electrodes are placed closed to a cooling lumen 24 (Column 4, lines 58-62), but does not teach or suggest that the thermal electrodes are placed directly on the skin. As such, Knowlton takes a different approach and fails to teach or suggest each feature of the claimed combination.

Knowlton also fails to provide any teaching or suggestion for the combination of an active electrode that includes a temperature sensor means, wherein the temperature sensor means comprises at least one sensor incorporated in the active electrode. The Office Action takes the position that the thermal electrode 26 includes thermal sensors 52. Applicant respectfully disagrees with this interpretation of Knowlton. The thermal electrode 26 does not include the thermal sensors 52 since Knowlton clearly discloses that the thermal electrode 26 and the thermal sensors 52 are two separate features of the apparatus. The present invention takes a completely different approach than Knowlton. Instead of placing the thermal electrodes 26 at a spaced location from the thermal sensors 52 as featured in Knowlton, the active

electrode of the present invention includes a temperature sensor means that is incorporated therein. This advantageously allows the temperature of the skin portion of the patient to be determined directly in the area where the radiation is being applied. This advantageously provides for an accurate and precise reading of the skin temperature of the patient. Compared with the present invention, Figures 1 and 4 of Knowlton clearly show that the thermal sensors 52 are not a part of the thermal electrode 26 as the thermal sensors 52 are located at a spaced location from the thermal electrode 26. As such, the prior art as a whole fails to teach or suggest important features of the claimed combination. Accordingly, Applicant respectfully requests that the Examiner favorably consider claims 1 and 14 as now presented and all claims that respectively depend thereon.

Claim 14 has been rejected under 35 U.S.C. 102(b) as being anticipated by Wiksell et al. (U.S. 4,846,196).

Wiksell et al. fails to teach or suggest an active electrode that is plate-shaped having a surface contact means for directly contacting the skin of a living being. At most, Wiksell et al. discloses that the treatment electrode 2 is in the shape of a pellet, a ball or a balloon-like structure. However, Wiksell et al. fails to direct the person of ordinary skill in the art towards an electrode that is directly applied to the skin of a patient as claimed. In contrast to Wiksell et al., the active electrode is a plate-shaped electrode. This advantageously provides the electrode with a large surface area that is in flat contact with a skin portion of living being. This advantageously provides for more accurate readings of the skin temperature of the living being. Wiksell et al. fails to provide such skin contacting advantages since Wiksell et al. only discloses

a treatment electrode 2 that is shaped in the form of a balloon or ball, but fails to provide any teaching of a plate-shaped active electrode as claimed. As such, Applicant respectfully requests that the Examiner favorably consider claim 14 as now presented.

Claim 4 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Knowlton in view of Rittman, III et al. (U.S. 6,506,189 B1). The rejection is based on the position that Knowlton discloses all the features as required by the base claim. However, as noted above, the invention includes a combination of features which is neither taught nor suggested by the prior art including Knowlton and Rittman, III et al. The claims which depend on claim 1 also patentably define over the prior art including Knowlton and Rittman, III et al. Rittman, III et al. merely discloses that RF ablation electrodes have incorporated temperature sensors. However, the references as a whole fail to disclose an active electrode having a temperature sensor means detachably connected thereto wherein the electrode is applied directly to the skin of a patient. Further, Rittman, III et al. fails to disclose an active electrode that has a seat that matches a corresponding connector of a sensor as claimed. Accordingly, reconsideration of each of the rejections is requested.

Claim 8 has been rejected under 35 U.S.C. 103(a) as being unpatentable Knowlton in view of Doss et al. (U.S. 4,016,886). Although Doss et al. teaches a method for localizing heat in tumor tissue, the references as a whole fail to suggest the combination of features claimed. Specifically, the references as a whole fail to suggest the combination of an active, plate-shaped electrode that has a skin contacting surface for contacting the skin of a living being. The references do not suggest the invention and therefore all claims define over the prior art as a

whole.

Applicant has added new independent claim 15. New independent claim 15 provides for the features found in previously presented claims 1 and 4, but in different claim language. Applicant respectfully requests that the Examiner favorably consider new independent claim 15 as now presented.

Favorable consideration on the merits is requested.

Respectfully submitted
for Applicant,



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Attached: (1) Sheet of Replacement Drawings
Petition for One Month Extension of Time

JJM:BMD

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SHOULD ANY OTHER FEE BE REQUIRED, THE PATENT AND TRADEMARK OFFICE
IS HEREBY REQUESTED TO CHARGE SUCH FEE TO OUR DEPOSIT ACCOUNT 13-
0410.